REDUCED TRANSITION PROBABILITIES TO THE FIRST 2^+ STATE IN ^{52,54,56}Ti*

D.-C. Dinca[a,b], R. V. F. Janssens[c], A. Gade[b], D. Bazin[b], R. Broda[d] ,C. M. Campbell[a,b], M. P. Carpenter[c], P. Chowdhury[c,e], J. M. Cook[a,b], A. Deacon[f], B. Fornal[d], S. J. Freeman[f], T. Glasmacher[b], F. G. Kondev[c], J.-L. Lecouey[b], S. N. Liddick[a,b], P. F. Mantica[b], W. F. Mueller[b], H. Olliver[a,b], K. Starosta[a,b], J. R. Terry[a,b], B. A. Tomlin[a,b], and K. Yoneda[b]

[a]*Department of Physics and Astronomy, Michigan State University, East Lansing, MI 48824, USA*
[b]*National Superconducting Cyclotron Laboratory, Michigan State University, East Lansing, MI 48824, USA*
[c]*Physics Division, Argonne National Laboratory, Argonne, IL 60439, USA*
[d]*Niewodniczanski Institute of Nuclear Physics, Polish Academy of Sciences, Krakow, Poland*
[e]*Department of Physics, University of Massachusetts, Lowell, MA 01854, USA*
[f]*Schuster Laboratory, University of Manchester, Manchester M13 PL, UK*

The neutron-rich Ti nuclei have been the subject of much interest recently because of experimental evidence for a sub-shell closure at N = 32 in neutron-rich nuclei just above ^{48}Ca [1,2] and the development of a new effective interaction GXPF1 [3] predicting a shell gap at N = 34. Interestingly, and perhaps surprisingly, the latter calculations do not appear to be substantiated by a recent beta-decay study of the level structure of ^{56}Ti [4].

In order to gain further insight in these nuclei, an experiment was undertaken at the NSCL where the titanium isotopes with A = 52, 54, and 56 were studied using intermediate-energy Coulomb excitation in inverse kinematics. ^{52,54,56}Ti fragments were produced via fragmentation of 130 MeV/A $^{76}Ge^{30+}$ primary beam at about 9 pnA average intensity on a ^{9}Be target. Following separation of the desired fragments in the A1900 separator [5], the beam was directed onto a ^{197}Au target. The Coulomb excitation process was tagged by requiring a coincidence between scattered Ti nuclei identified in the S800 magnetic spectrograph [6] and gamma rays detected with the Segmented Germanium Array (SeGA) [7].

The measured B(E2; $0^+ \rightarrow 2^+$) rates will be presented and compared with results of shell model calculations using a number of modern effective interactions.

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